APPENDIX

ILLUSTRATIVE APPLICATION GENERATION

CHAPTER 1: THE BASICS

1.1 THE SYSTEM

The system consists of three entities: DataSlate[tm], MagicSlate[tm], and Datellite[tm]. The first two are software, and the third is hardware.

DataSlate[tm] is used to design applications from scratch. This chapter introduces the fundamentals of DataSlate[tm].

MagicSlate[tm] runs the final compiled versions of the applications on Datellite[tm]'s touch-screen.

Datellite[tm] is a keyboard-less MS-DOS computer equipped with a 3½" disk drive. You also have the option of attaching an external hard disk, your own video, bar code reader, telephone modem -- anything you can attach to any micro. Adding your own screens or keyboards gives you a regular PC.

Application designers will be primarily concerned with DataSlate[tm].

1.2 WHAT IS AN APPLICATION?

The basics of designing applications can be summarized in the following single sentence:

"The application is a series of multiple-choice questions."

For example, Figure 1.1 below presents a simple, two-question application which might be used in a survey to determine the percentage of males and females who own computers:

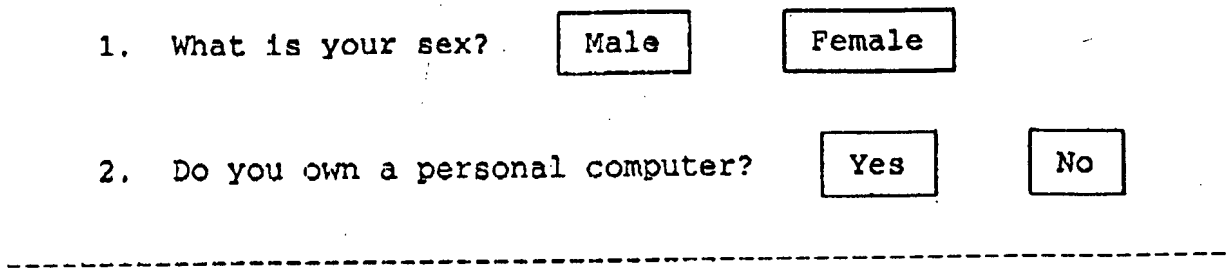

Figure 1.1

Since Datellite™ employs a sensitive touch-screen, the person using your application selects answers to the questions with the simple touch of a finger on an active area which is delineated by a frame on-screen.

1.3 ELEMENTS OF AN APPLICATION

An application consists of the following elements:

- Pages and Answers

A page is a standard screen consisting of 25 lines each with 80 characters. Each page contains questions in the form of simple text and corresponding answer fields such as in Figure 1.1. You simply type in the questions which are, in actual fact, ignored by DataSlate™. The answer fields, however, are the crux of the application, and are covered in Section 1.4.

- Libraries

Some questions may have a large number of possible answers, such as the question, "Which state do you live in?". You wouldn't want to type in the 50 states enclosed in frames on screen as in Figure 1.1, because for one thing, there would not be enough room on one page. What you would do is store the list of the 50 states in a library. Libraries are the subject of Section 1.5.

1.4 ANSWER FIELDS

Once you type in the question to be answered, you then define an answer field to accomodate the reply to be entered by the user.

DataSlate™ has the following eight answer types available:

- "Character" for character string answers;

- "Multiple", for answers to be shown on screen as choices inside of square frames (as in Figure 1.1);

- "Numeric", for answers that are to be strictly numbers;

- "Scale", for questions that beg more indefinite "touchy-feely" answers. For example, consider the question `Condition of Auto', where approximate answers would be entered by sliding an "x" along a scale with "Wreck" and "Mint" at each end.

- "Date", "Time", and "Phone", for answers that are to be of those forms; and

- "Report", for answers requiring several lines of text.

Depending on which answer-type you choose, there might be values to assign to various parameters.

For example, consider the question "Year". The answer type, taking the example of the car, would be numeric. Some of the parameters for this answer-type include its format (how many digits permitted in the answer?), the range of years over which the response would be accepted as valid, and whether a library is to be accessed.

1.5 LIBRARIES

DataSlate™'s Golden Rule:

> Avoid keyboard-oriented answers!

The raison d'être for Datellite™s is to make computers easy to use for everyday people and especially computerphobes, and computerphobes are largely keyboard-phobes.

The way to avoid the use of the keyboard in any given application is to make frequent use of libraries.

In the car example, the question "Year" asks for the year in which the car was built. Instead of having the user call up the keyboard and type in `1', `9', `8', and `9', a library consisting of entries `1965' through `1989', say, could be displayed instead. The user would then select the appropriate year from the list on-screen with the touch of a finger!

There are three types of libraries:

- the Sequential libraries (and their sub-libraries), which hold lists of answers and perform no subsequent function;

- the Consequential libraries, which hold lists of answers and can affect the flow of the application. That is, the next questions asked are dependent upon the previous answer selected.

For example, consider the question "Which state do you live in?" If the user answers "New York" to this question the application would then switch to an area that had questions and answers specific to New York. If, however, the answer is any other state, the New York questions and answers would then be inappropriate and therefore not come up on screen.

- the Help library, which contains all of the Help messages that you create for your end-users.

1.6 LOGICAL FLOW OF APPLICATIONS

The logical flow of your application is controlled by a parameter common to each answer field: the GoTo parameter. This parameter determines the next question to be asked in the application. Each question is also assigned a Sequence Number used by the GoTo parameter.

In the example of Figure 1.1 above, question 1's GoTo parameter would be simply "Next Question". Question 2's GoTo parameter, being the final question of this short application, would be "End Program".

1.7 THE POP-UP KEYBOARDS

Some questions will require input from a keyboard. For these question, the Datellite™ comes equipped with a keyboard that is produced on-screen for the time necessary to enter the answer. The user keys in the answer on the touch-screen, and then the keyboard disappears until needed again.

By the way, two types of keyboards are available for the end-user to choose from: QWERTY for those familiar with a typewriter keyboard, and ALPHA for those who are not.

CHAPTER 2: DESIGNING AN APPLICATION

By following the steps outlined in this chapter, you will create an application using DataSlate™.

2.1 THE APPLICATION

Consider the situation where a survey of different residential districts is to be performed. This analysis might call for the following information to be recorded relative to each household visited:

- the district name;

- the age, gender, and job status of each adult living in the household;

- the number of children living in the household; and

- the general condition of the property.

2.2 A NOTE ABOUT QUESTIONS AND ANSWERS

The first step in designing an application is comprised of drafting the questions and defining the formats for their answers.

What you must be aware of here is that we are using the term `question' quite liberally. When we say `question' we mean literally any kind of text because, quite simply, DataSlate™ does not take this text into account.

Questions are only for the benefit of the user.

For example, we can format multiple choice answers in such a way that no question-text is required. Figures 2.2 and 2.3 below illustrate this important point.

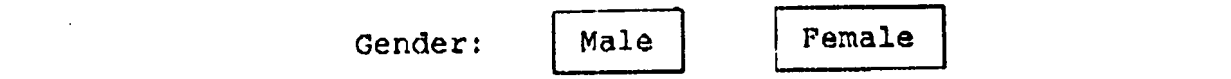

Figure 2.2

In this example, the question is implied in the multiple-choice answers presented, and no one would have any difficulty in ascertaining that the question was "Gender:" if, as Figure 2.3 shows below, the question-text was eliminated.

Figure 2.3

Now, let us proceed with the design of our application. You may have realized that we have already drafted one of the questions of our application, the gender of an adult living in the household.

If you have not already done so, bring up DataSlate[tm]'s Main Menu by entering the command

DATASLATE

at the C> prompt in your root directory.

2.3 IMPORTANT KEYS

Before going any further, we should tell you about some of DataSlate[tm]'s most important keys:

<F1> --> The <F1> SKIP-INPUTS key is used to skip an entire set of input parameters and move on in the program. It has the same effect as pressing <RETURN> as many times as there are parameters left to answer, basically skipping over them all automatically.

<F2> --> The <F2> HELP key can be used practically anywhere to call up Help text about the section of DataSlate[tm] you happen to be in at the time. This Help text is displayed in convenient windows, and there may be one, two or three windows of such text. The first window is generally a hint screen. If you need more detailed information go to ensuing screens (if available) by pressing <F2> repeatedly. Pressing any other key will get you out of the Hint or Help text and back to where you were prior to pressing <F2>.

<F4> --> The <F4> EXIT key is used to exit various sections of DataSlate[tm], such as Loop definition, Library building, and the Page Designer.

<ESC> --> Pressing the <ESC> CANCEL key will cancel any function you are in at the time you press the key, and where applicable, will also return you one level back through DataSlate[tm].

<ARROW>'s --> You may use the <ARROW> keys to manuever your cursor among DataSlate[tm]'s input parameters. Whenever there is a set of inputs on screen, the <ARROW> keys can be used to move the cursor among the various inputs. They are used to skip inputs or to go back to an input and correct what you've just entered.

2.4 DESIGNING THE APPLICATION

Now choose an option from the Main Menu on screen. The way to do this is to scroll the light bar onto the option you wish to choose using the <ARROW> keys, and press <RETURN>. Another way is to simply enter the corresponding number of the option.

The option you want to select is "1- Application Generator".

This is the Application Generator Menu. The first option, "1- Create/Edit", is to be chosen to begin designing our application. Select it by pressing <RETURN>.

CREATING THE EMPTY APPLICATION

The "Create/Edit Applications" screen should now appear. The eight-option menu near the bottom of your screen contains the option "New". The light bar is already positioned on it, so simply press <RETURN> to register this option as your choice.

A cursor appears next to the label, "Application Name". The space that the cursor is in is called a parameter, which currently has no value. Enter the name of your new application "Survey" here and press <RETURN>. Next, skip over "Application Type" for this demonstration (by pressing <RETURN> over the word "General"), and enter your own name in the "Author" parameter.

The "Creation Date" has already been filled in for you (using your operating system's value), but you can change this to any date you wish.

The "Description" parameter is there to briefly comment on the purpose of your application and is used to further tell this application apart from others. You may enter something like, "Survey of persons living in households in certain districts" to describe this one.

We'll ignore the remaining parameters as they pertain to the eventual distribution of the application. Press the SKIP-INPUTS key <F1> to get out of this editing stage and back to the eight-option menu. The <F1> key can be used like this whenever DataSlate™ has many input parameters for you to do but you have nothing to enter, as in our case here.

If you've made any mistakes, select the option "Modify" to re-edit the above parameters. Remember that whenever you use the option "Modify" (as well as "Delete" and "Copy"), there must be an application displayed on screen, or else you will get the error message "** No application available". In such a case, use the <UP-ARROW> and <DOWN-ARROW> keys to scroll through and display existing applications, or select the "Find" option and key in all or part of the application's name that you wish displayed.

Having created the identification for our application, we now need to create the actual questions and answers, and to do this we need the Page Designer which is accessed by the option "Pages".

THE PAGE DESIGNER

The light bar should already positioned on the option "Pages" (this is automatically done after a new application is created). Select this option by pressing <RETURN>.

Generally, applications consist of a number of sequential pages, with each page consisting of 20 lines. We'll fit this application on one page.

The top 20 lines of the Page Designer is where our application will be designed. The last 5 lines are status lines belonging to DataSlate™ and used for various counters and messages.

One feature of the Page Designer is a basic word processor, and whatever we type here will be displayed to the user in exactly the same form.

Knowing this, we can begin the design of the actual appearance of our application with the introduction of the function key we will be using the most: <F5>, the Answer Formatter. We will use this key to access the Answer Formatter which we will use to define the formats for our answer.

THE FIRST QUESTION

Now, let's define the first question.

Let's say the first piece of information required in the survey is the district name. We first word the question so the user will know what is to be entered. The question's wording is kept simple and obvious: "District:" will do just fine. Type this in on the first line of the Page Designer. Do NOT press <RETURN> because we wish to place the answer field right next to the question (look ahead to Figure 2.9 to see what our goal is --but don't worry about centering the question on screen yet!).

Next, we want to define the answer to the question. Place the cursor exactly where you want to position the answer (say, two spaces after the colon next to the word "District"). Now, press <F5>.

THE ANSWER FORMATTER

The "Answer Formatter" window will appear.

There are 3 parameters to define here: Answer Name, Question Sequence number, and Answer Type.

Assuming that you did type in the word "District" a minute ago, you will find that the Answer Name has that value already (as in the figure). If not, type in "District" next to the "Answer Name" label. Whatever the case, press <RETURN> to proceed to the next parameter.

You will find that the Question Sequence number has the value of 1, since this is the first answer you have defined. This number is used to determine the order of questions asked. Therefore, the question "District" will be the first question asked during the survey because its Question Sequence number is 1. Press <RETURN> to accept 1 as the Question Sequence number and to continue to the third parameter.

"Answer Type" consists of an eight-option menu of all possible types. As in all menus, the light bar is controlled by the <ARROW> keys. The answer to the question "District" is to be of type character. After making sure the light bar is high-lighting the option "Character", press <RETURN> to register it as our choice.

Eight more parameters will appear in a second window,

We assume that no district's name shall be more than 20 characters in length. Enter 20 in the space next to "Characters per Line" and press <RETURN>. We will only need 1 line of 20 characters, and so just press <RETURN> next to "Lines" since the number 1 is already there.

LET'S USE A LIBRARY

Press <RETURN> seven times now to skip down to the "Entry Method" parameter. (If you pressed <RETURN> too many times causing you to exit this second window and have returned to the Page Designer, place the cursor inside District's 20-character long answer field on-screen and press <F5> again to re-edit this window.)

The "Entry Method" parameter is where you define the method in which the user can enter answers. The word "Keyboard" is written there now, but we don't want the user to bother with a keyboard. Instead, we will later create a list of possible answers that we will display to the user for him or her to choose from with a touch of a finger. This list is called a library.

Look at the very bottom line of the screen. It says to press the <SPACEBAR> to see the available options. Well, press the <SPACEBAR> twice. Did you notice that "Entry Method" changed from "Keyboard" to "File" and then to "Library"? "Library" is the option we want. Press <RETURN> to register this as our choice.

A third window pops up.

This is where we must decide on which library the user is to choose a district name from. To make things easier for us to remember later on, let's name the library with the same name as the answer it will be associated with. Enter "District" as the name of the library and press <RETURN>. The library is now created, but it is empty (we shall build it later).

When this question will be asked, there could be cases where the library won't contain the district name the user wants to enter. In such a case, we could permit the user to type in this district name which isn't in our library. This is what the "Allow User Keyboard Input" means. Set to "Yes" using the spacebar once again, the user will have the choice of selecting a district name from the library or typing in his or her own. Set to "No", we restrict the user to choose a district from our library only. For our application, enter "No" in this parameter and press <RETURN>.

Now all three windows disappear and we are back in the Page Designer. Notice that our answer has been defined and is displayed on screen. The answer field is displayed using what is referred to as padding characters. All answer fields, regardless of type, will be displayed using padding characters.

If you've made any mistakes in the Answer Formatter, make sure the cursor is inside "District"'s answer field and press <F5>. You may then re-edit any parameter in the second and third windows.

CENTERING

Once you are back in the Page Designer, the final function to perform is to center our first question and answer. First press the <ALT> key and then hit the letter C, keeping the <ALT> key depressed at the same time (this will be represented as <ALT-C> from now on). Your screen should look like this:

```
------------------------------------------------------------------------
                        District:

========= Page: 1 === Line: 1 === Column: 40 === Mode: Insert ===

<F2> = Help   <ESC> = Cancel   <F5> = Enter/Edit Answer

------------------------------------------------------------------------
```

Figure 2.12

THE NEXT THREE QUESTIONS

Next we will want data on the adults; namely age, gender, and employment status of each one. These three can be answered with multiple-choices. Let us define each answer one at a time.

[Notice that the first status line (line 22 at the bottom) contains counters. These counters tell you what page, line and column the cursor is positioned at.]

A QUESTION OF AGE

For the next question, position the cursor at line 4 and column 15. Type in the word "Age:" and skip two spaces. You should now be on line 4 in column 21.

The question "Age:" will be a multiple choice question. The multiple choices will be "18-30", "31-45", and "45 +". Press <F5> to call up the Answer Formatter's first window to begin the process of defining these choices. Figure 2.13 shows what DataSlate™ will display.

The "Answer Name" parameter should have the value "Age" and the Question Sequence number should be 2 (as this will be the second question asked). Make sure this is so. Press <RETURN> for each parameter. "Answer Type" is to be Multiple, and so place the light bar on the option "Multiple" using the <DOWN-ARROW> key and press <RETURN>.

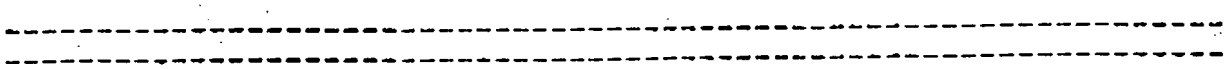

Figure 2.14

Figure 2.14 above shows the second window displayed: the parameters of the answer type Multiple. For now we can simply skip over all of these parameters because their default values are exactly what we want. Press <F1> to skip over every parameter.

DRAWING FRAMES

Now, just for a second, refer back to Figure 1.1. Notice the frames that border the multiple choice answers "Male" and "Female"? These had to be drawn, and now this is what we are going to do for each of the responses to the question "Age:".

Your screen now presents you with four styles of frames. Do you see the arrow underneath the first one? Use this arrow to select a frame style you wish to draw with. For our example, we will use the first style, and so just press <RETURN> to select it.

Now, since we want to include choices like "18-35" to answer the "Age:" question, we must make certain that the frames we draw are big enough to fit our choices in. In this example, the frame must contain at least 5 characters of horizontal space. Since the left and right borders of the frame will take a space each. This adds up to a total of 7 spaces. The frame, then, must be 7 spaces across. Since you are now in column 21, 7 spaces will bring this to column 27 (when you include column 21). Move the cursor over to column 27. The frame will expand accordingly.

The frame takes up lines 4 and 5. Where will our choice "18-35" be written? We need a blank line inside the frame. Press the <DOWN-ARROW> key once. Now the frame takes up lines 4, 5 and 6. We want our choice to be written on line 5, columns 22 to 26.

But don't worry because DataSlate™ will take care of this automatically. All you need to do now is press <RETURN> and type in "18-35" next to the parameter "Answer Text" that appears in the window shown below:

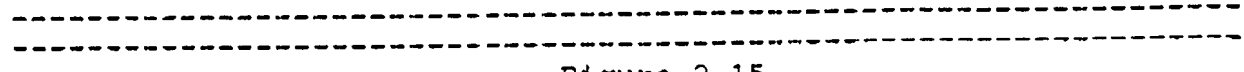

Figure 2.15

Press <F1> after typing "18-35" to skip over the Return Value and GoTo parameters. The frame of our first multiple choice is displayed using the padding character.

[N.B. If, by chance, you have positioned the answer field wrong and you wish to delete it, position the cursor anywhere inside the answer field and press <F6>. Answer "Yes" to the warning that makes sure you want to delete the answer field, and press <RETURN>. Reposition the cursor, and press <F5> again to redefine the answer field as outlined above.]

COPYING FRAMES

Now let's define the two other choices for "Age:". What we are going to do is copy the frame we have just created. Then the window of Figure 2.15 above will appear again for the new frame, and we will enter "36-50". We will repeat all of this again for the choice "50 +".

With the cursor still inside the first answer field of "Age:", press <ALT-R>. You are now in the Page Designer's "Copy Answers" mode. All you need to do now is reposition the cursor to where you want the top left hand corner of the new frame to be. If this sounds confusing, don't worry, just follow these instructions: position the cursor on line 4 and column 35 and press <F5>. Do you see how the cursor is in the new frame's top left hand corner? Now, we must specify this new frame's "Answer Text", which is to be "36-50", the next age choice. Type this in and press <F1> to skip over the other parameters. The second frame is copied from the first and displayed.

[N.B. If you decide to delete this second frame because it is not in the correct position, leave the "Copy Answers" mode by hitting <RETURN>. Make sure the cursor is inside the answer field frame and press <F6> to delete. Answer "Yes" to the warning that makes sure you want to delete the frame. To redefine it, place the cursor back in the first answer field frame and press <ALT-R> again, and proceed as outlined in the previous paragraph above.]

For the last choice, we move the cursor again to where we wish the last frame to be (we are still in "Copy Answers" mode and will remain so until we press <RETURN>). Move the cursor over to column 49 and hit <F5>. Type in "50 +" in the "Answer Text" parameter and press <F1>. Press <RETURN> to leave "Copy Answers" mode (and notice that the "Mode:" indicator at the lower right of the screen changed from "Copy Answers" mode to either "Insert" or "Overwrite" mode), and we are ready to define the next question.

THE THIRD QUESTION

The next question is gender, and as we have discussed above, there will be no question text for this one. Therefore, we are to position the cursor where we wish the choices "Male" and "Female" to appear.

Position the cursor on line 8, column 5, and press <F5>. The Answer Formatter window pops up. Enter "Gender" in the space next to "Answer Name", and press <RETURN> twice to register this name and to skip over "Question Sequence #", which already has the correct value of 3. Select "Multiple" as the Answer Type using the <ARROW> keys and press <RETURN>. Hit <F1> to pass over Multiple's set of parameters to the frame style selection. Let's be consistent and choose the same frame style as before; press <RETURN> to select the first frame style.

A QUESTION OF SIZE

When you draw frames for multiple choice questions keep in mind that, for esthetic reasons, the other choices in the set should have frames of the same size. Therefore, note the length of the choice with the longer text that will have to fit in the frame.

In our case here, the choice "Female" is longer than "Male", and so the frame must be designed with this in mind. Since "Female" is 6 characters long, and the frame itself will take up 2 horizontal spaces, the frame must be at least 8 characters in length.

Since you are at column 5, move the cursor over to column 12, for a total length of 8 characters (including column 5). Move the cursor one line (not two) down to make room for the text, and hit <RETURN> to finish drawing. Enter "Male" for the parameter "Answer Text", and then enter "1" as its return value. Therefore, if the user selects this answer, it will be represented as "1" in the database.

Now we are going to copy this frame for the second choice. With the cursor still inside the field, press <ALT-R>. Move the cursor over to column 20 on line 8 and press <F5> to copy. Enter "Female" next to "Answer Text" in the window that appears and enter "2" as its return value. Now hit <RETURN> twice to leave "Copy Answers" mode, and we are ready for our fourth question.

THE FOURTH QUESTION

The fourth question is the same in principal as the Male/Female question, except the choices are "Employed" and "Unemployed".

Place the cursor at column 47 (still on line 8) and define the fourth question (the answer name could be "Job-Status") using the same procedure outlined above. The frame should stretch from column 47 to column 58, inclusive.

The second choice ("Unemployed") should be copied from the first (using <ALT-R>) into column 65.

THE FIFTH QUESTION

SOME MINOR BRANCHING

The fifth question is "Children" and uses the same priciples as the last three questions, but with a slight twist. This time we will demonstrate the use of branching instructions.

The question gives basically four choices for the number of children in the household: 0, 1, 2, or MORE. Here is the twist: if 0, 1 or 2 is chosen, the user will carry on to the last question of the survey ("Condition of Property"). If, however, the user chooses MORE, a supplementary question will be asked with which the user will specify the number of children in the household by choosing from a list of higher numbers (4, 5, 6, etc) that will pop up. After that choice is made, the last question will be asked, and the survey will be complete.

Let us design this question. Position the cursor on line 14 and in column 8. Type in "Children:" and then skip 6 spaces. You should be in column 23 now. Press <F5> to create the answer field of the first choice.

The Answer Name is "Children" and the Question Sequence Number is 5. Select Multiple as the Answer Type and press <RETURN>. Press <F1> to skip over Multiple's parameters, and select the first frame style by pressing <RETURN>. The word "MORE" must be able to fit inside the frames for this question, so make certain that the frame is 6 characters long (the frame should therefore start in column 23 and end in column 28). Do not forget to press <DOWN-ARROW> once to free one line for the text of the choices. Press <RETURN> once the frame is complete. Enter "0" as the Answer Text for this first frame, and press <F1>.

Now we simply copy this frame three times for the remaining three choices of 1,2, and MORE. With the cursor still in the first frame, press <ALT-R>. Position the cursor where we want the next frame to be, namely line 14, column 35. Press <F5> to copy the frame. Enter 1 as the Answer Text and press <F1>. The next frame is to be positioned on line 14, column 47, with Answer Text of 2.

THE GoTo PARAMETER

The fourth frame is copied in the same manner, with a slight exception. Copy the frame into column 59. Type in the word MORE as the Answer Text. Press <RETURN> twice to get to the GoTo parameter. Notice that all this time this parameter was always set to "Next Question" as it is now. This is what controls the logical flow of the application's questions (see Section 1.6). It indicates what the following question will be. This time, if the user chooses the choice MORE as the answer to the question "Children", we want the survey to ask a supplementary question before proceeding to the last question as it normally would have done. To avoid confusion, let's give this supplementary question a sequence number of 50. The normal course of the application will run from question 1 to question 6. Depending on the answer of question 5 (number of children), question 50 may be asked.

Now then, we must specify that question 50 is the question to go to if the choice MORE is selected. The default value of GoTo is "Next Question". Press the <SPACEBAR> twice to change this value to "Question #". Press <RETURN>. Type in the number 50 and press <RETURN>. It's as easy as that.

THE SUPPLEMENTARY QUESTION, # 50

Press <RETURN> to leave the "Copy Answers" mode. Move the cursor over to column 71 on line 14. It is here that we shall create the answer field for question 50. Press <F5> to call up the Answer Formatter. The Answer Name to be typed here should be "Child2", for the sake of this demonstration. The Question Sequence number is 50 and this time you must type it in because DataSlate™ was expecting the next question to be defined, which would have been number 6, which we shall do next. Type in the number 50 in its place and press <RETURN>. Select Numeric as the Answer Type and press <RETURN>.

"Numeric"'s parameters will appear in a pop-up window.

Only two parameters concern us here, and they are the GoTo parameter and the Entry Method parameter. Press <RETURN> the number of times that it takes to get your cursor down to the GoTo parameter. The current value says "Next Question". The last question of the survey is "Condition of Property", which has the sequence number of 6. Therefore, we must go to question 6 after this one is answered. So, press the <SPACEBAR> twice to get "Question #" as the GoTo parameter, and press <RETURN>. Enter the number 6 next to "Question #" and press <RETURN>.

Now the cursor should be in the Entry Method parameter. We want to present the user with a list of numbers (higher than 2) from which the number of children can be picked. This list is a library. Press the <SPACEBAR> twice to change its value to "Library". Press <RETURN> to register this choice, and then type in "Children" as the name of the library. Once that is done, hit <F1> to leave this window (we won't allow the user additional keyboard input, so that parameter can keep the value of 'No'). Two padding characters, representing where the actual number of children will appear once entered by the user, appear next to the multiple choices.

THE LAST QUESTION

Let us now define question 6 (the last question of the survey).

A SCALED-DOWN QUESTION

This type of question will display a ladder scale from 0 to 10, because "Condition of Property" can be best answered as a value from 0 to 10 (0 being the worst condition possible, and 10 being the best). The user will glide an X (using a finger) to the value he or she considers to be the answer. For our application, the question is "Condition of Property". The resulting answer will be indicated by using the scale, and the answer will be a value from 0 to 10 in increments of 0.5.

Place the cursor on line 18 and column 18. Type in the question, "Condition of Property:", skip two spaces and hit <F5> at column 42 on line 18. Enter "Property" as the Answer Name and press <RETURN>. Make sure you enter the number 6 as the Question Sequence number. Select Scale as the Answer Type, and press <RETURN>.

The Scale window will pop up, showing what the scale looks like and four of its parameters. Press <RETURN> twice to place the cursor in the GoTo parameter. This question is the last question of the application, and so the GoTo parameter must reflect this. Hit the <SPACEBAR> five times to change the value of the parameter to "End Program". When the system will reach this parameter during execution, the application will terminate.
Hit <F1> to leave this window.

There are two final things to do: define a loop for the three questions concerning adults (age, gender and job status) and build the "District" and "Children" libraries.

LET'S DEFINE A LOOP

What is a loop and why do we need it? Well, a loop is simply a group of questions that will be asked over and over (creating new records each time) as long as the user wants.

As it stands now, our application records information only for one adult per household. To record information for more than a single adult per house, we must ask the second, third and fourth questions for each adult. Hence, questions 2, 3 and 4 must be in a loop.

The way this works for the user is as follows: the first adult's information will be entered. Then, a prompt will appear, asking "Another adult?" The user will have three options: yes, no or review. If the user answers yes, the loop (questions 2, 3 and 4) will execute once more, recording information about another adult. If the user answers no, the loop will terminate and the next question ("Children") will be asked. If the user answers `review', the user will be given the chance to edit all of the information previously entered.

LOOP DEFINITION

Let's define a loop for questions 2, 3 and 4. Without worrying about the position of the cursor, press <ALT-L>.

Since our loop will start with question 2, enter 2 in the From Question # parameter and press <RETURN>. Our loop shall end with question 4, and so enter 4 in the To Question # parameter and press <RETURN>. Below, a second window that keeps track of loops shall appear, showing this loop as the first `Existing Loop'.

Skip over the Loop Type parameter for now by pressing <RETURN>. Type in "Another adult?" in the Prompt parameter, replacing the more ambiguous "Another item?" At the end of each iteration of the loop, it is this prompt that the user will see displayed. The user will then answer either `Yes', `No' or `Review'. Press <F4> to exit the loop definition window.

THE LIBRARIES

Now we are ready to build the two libraries. First, however, we must save the application and exit the Page Designer. Press <F4> and select the "Save & Quit" option from the menu that appears. The "Create/Edit Applications" screen will return. Press the letter Q to select the Quit option. The Applications Generator Menu will return, after which you should press 7 to quit back to the Main Menu.

Select the option "Library Maintenance" from the Main Menu by pressing the number 2. The Library Maintenance Menu will appear. The first option, "Sequential Libraries", is the one we want, and so hit <RETURN> or press the number 1 for this option.

The two libraries, "District" and "Children", are already created; they are simply empty. We must now build them.

BUILDING THE "DISTRICT" LIBRARY

Let's build the "District" library first. Notice that the light bar is on the "Next" option. Press <RETURN> twice and the "District" library will be called up on the screen. The options "Next" and "Prev" simply go forwards and backwards respectively throughout the library listing. Currently, our library listing contains only two existing libraries, "District" and "Children".

Now that the "District" library is up on the screen, select the "Content" option by pressing the letter C (or moving the light bar over to it and pressing <RETURN>). A two-option menu will appear, consisting of the choices "Main Library" and "Sub-libraries". Press <RETURN> to select the first choice as we do not need sub-libraries for this application.

To build up entries in this library, press the letter A (to select the option "Add"). The cursor is now next to the Entry parameter. This is where you type in the library entries. We will enter the names of the districts that are going to be surveyed. After a name is entered, press <RETURN> twice to skip over the Return Value parameter and on to entering the next entry. For example, type in "Arlington" as a district. Hit <RETURN> twice. Now type in "Cambridge". Do the same for "Woburn" and "Burlington". Now we have a four entry library. For this example, we consider this to be enough. Press <F4> to exit the window and return to the menu below it.

If you made any mistakes entering entries, use the "Next" and "Prev" options (or the <UP-ARROW> and <DOWN-ARROW> keys for the same effect) to scroll through the library to the entry you want. Select the "Modify" option to re-edit the entry (pressing <F4> when done), or select the "Delete" option to erase the entry.

Press Q while in the menu to quit the "Content" option when you are finished building the "District" library.

BUILDING THE "CHILDREN" LIBRARY

Now we are back to the screen of Figure 2.20 above. Press the letter P (for "Prev") to call up the "Children" library on screen. Press the letter C for the "Content" option and to pop up the "Main Library/Sub-libraries" menu again. Press <RETURN> to choose the first option, and then press A to begin adding new entries, as we did previously.

This library consists of numbers higher than 2, for if you'll recall, this library will be displayed to the user if the household has more than 2 children. To avoid forcing the user to use the keyboard, we will create entries consisting of the numbers 3 to 10 (a reasonably high number). Do so in the exact same manner as outlined for the "District" library's entries.

After quitting the "Content" option once again and finding yourself back to the screen of Figure 2.20, press Q to quit back to the Library Maintenance Menu, and press 4 to quit back to the Main Menu.

The Survey application is completed. We need only to compile and download it.

COMPILING THE APPLICATION

To compile the application, select "Application Generator" from the Main Menu. Select the third option, "Compile", by pressing the number 3 from the Application Generator Menu.

Type in the name "Survey" and press <RETURN>. The application will be compiled into 3 run-time files. Once completed, you will find yourself back in the Applications Generator Menu.

DOWNLOADING THE APPLICATION

Press the number 6 to select the "Download" option from the Applications Generator Menu. Type in the name "Survey" once more, press <RETURN> twice (skipping over the User parameter), and specify a pathname for the compiled version. Making sure that a floppy diskette is inserted in the drive specified, press <RETURN> and the application will be downloaded to the floppy.

VOILA!

Your application, now on diskette, is ready to be executed on the Datellite™.